

CLAIMS:

1. A method of receiving a signal from a multiple-input-multiple-output (MIMO) communication channel, the method comprising:

generating initial channel taps based on an impulse response estimate of the MIMO communication channel; and

pre-filtering the received signal using the initial channel taps to generate output channel taps and a corresponding output signal having increased signal-to-noise ratio (SNR) and uncorrelated noise, and wherein the SNR is based on a ratio of energy in a first subset of the output channel taps to energy in a second subset of the output channel taps.

2. The method of Claim 1, further comprising pre-filtering the received signal to maximize the SNR of the output signal.

3. The method of Claim 1, further comprising pre-filtering the received signal so that the output channel taps in the second subset comprise all output channel taps except for the output channel taps in the first subset .

4. The method of Claim 1, further comprising pre-filtering the received signal so that the output channel taps in the second subset comprise all the output channel taps except for the output channel taps in the first subset and except for a predetermined number of the output channel taps following the output channel taps in the first subset.

5. The method of Claim 4, further comprising pre-filtering the received signal so that the output channel taps in the second subset comprise all output channel taps except for the output channel taps in the first subset and except for a predetermined number of the output channel taps that immediately follow the output channel taps in the first subset.

6. The method of Claim 1, further comprising scaling some of the output channel taps in the first subset differently than other of the output channel taps in the first subset.

7. The method of Claim 1, further comprising scaling some of the output channel taps in the second subset differently than other of the output channel taps in the second subset.

8. The method of Claim 1, further comprising scaling at least some of the output channel taps in the first subset differently than at least some of the output channel taps in the second subset.

9. The method of Claim 1, wherein the SNR is based on a ratio of energy in the first subset of the output channel taps to the sum of energy in output noise and the energy in the second subset of the output channel taps.

10. A receiver comprising:
a channel estimator that is configured to generate initial channel taps based on an impulse response estimate of a multiple-input-multiple-output (MIMO) communication channel; and
a filter that is configured to pre-filter the received signal using the initial channel taps to generate output channel taps and a corresponding output signal having increased signal-to-noise ratio (SNR) and uncorrelated noise, and wherein the SNR is based on a ratio of energy in a first subset of the output channel taps to energy in a second subset of the output channel taps.

11. The receiver of Claim 10, wherein the filter is configured to pre-filter the received signal to maximize the SNR of the output signal.

12. The receiver of Claim 10, wherein the filter is configured to pre-filter the received signal so that the output channel taps in the second subset comprise all output channel taps except for the output channel taps in the first subset.

13. The receiver of Claim 10, wherein the filter is configured to pre-filter the received signal so that the output channel taps in the second subset comprise all output channel taps except for the output channel taps in the first subset and except for a predetermined number of output channel taps following the output channel taps in the first subset.

14. The receiver of Claim 13, wherein the filter is configured to pre-filter the received signal so that the output channel taps in the second subset comprise all output

channel taps except for the output channel taps in the first subset and except for a predetermined number of output channel taps that immediately follow the output channel taps in the first subset.

15. The receiver of Claim 10, wherein the channel estimator is configured to generate the output channel taps by scaling some of the output channel taps in the first subset differently than other of the output channel taps in the first subset.

16. The receiver of Claim 10, wherein the channel estimator is configured to generate the output channel taps by scaling some of the output channel taps in the second subset differently than other of the output channel taps in the second subset.

17. The receiver of Claim 10, wherein the channel estimator is configured to generate the output channel taps by scaling at least some of the output channel taps in the first subset differently than at least some of the output channel taps in the second subset.

18. The receiver of Claim 10, wherein the SNR is based on a ratio of energy in the first subset of the output channel taps to the sum of energy in output noise and the energy in the second subset of the output channel taps.

19. A wireless terminal comprising:
an antenna that is configured to receive signals from a multiple-input-multiple-output (MIMO) communication channel;
a front end circuit that is configured to convert a received signal from the MIMO communication channel to a baseband signal;
a channel estimator that is configured to generate initial channel taps based on an impulse response estimate of the MIMO communication channel;
a filter that is configured to pre-filter the received signal using the initial channel taps to generate output channel taps and a corresponding output signal having increased signal-to-noise ratio (SNR) and uncorrelated noise, and wherein the SNR is based on a ratio of energy in a first subset of the output channel taps to energy in a second subset of the output channel taps; and
an equalizer that is configured to equalize the output signal to provide an estimate of an information sequence in the received signal.

20. A base station comprising:

an antenna that is configured to receive signals from a multiple-input-multiple-output (MIMO) communication channel;

a front end circuit that is configured to convert a received signal from the MIMO communication channel to a baseband signal;

a channel estimator that is configured to generate initial channel taps based on an impulse response estimate of the MIMO communication channel;

a filter that is configured to pre-filter the received signal using the initial channel taps to generate output channel taps and a corresponding output signal having increased signal-to-noise ratio (SNR) and uncorrelated noise, and wherein the SNR is based on a ratio of energy in a first subset of the output channel taps to energy in a second subset of the output channel taps; and

an equalizer that is configured to equalize the output signal to provide an estimate of an information sequence in the received signal.

21. A wireless communication system comprising:

a base station; and

a wireless terminal, wherein the base station and the wireless terminal are configured to communicate with each other via a multiple-input-multiple-output (MIMO) communication channel, and wherein at least one of the base station and the wireless terminal is configured to generate initial channel taps based on an impulse response estimate of the MIMO communication channel, and is configured to pre-filter the received signal using the initial channel taps to generate output channel taps and a corresponding output signal having increased signal-to-noise ratio (SNR) and uncorrelated noise, and wherein the SNR is based on a ratio of energy in a first subset of the output channel taps to energy in a second subset of the output channel taps.

22. A computer program product for receiving a signal from a multiple-input-multiple-output (MIMO) communication channel, the computer program product comprising program code embodied in a computer-readable storage medium, the computer program code comprising:

program code that is configured to generate initial channel taps based on an impulse response estimate of the MIMO communication channel; and

program code that is configured to pre-filter the received signal using the initial channel taps to generate output channel taps and a corresponding output signal having increased signal-to-noise ratio (SNR) and uncorrelated noise, and wherein the SNR is based on a ratio of energy in a first subset of the output channel taps to energy in a second subset of the output channel taps.